*****Note: This template can be used for CTPs, PTSs, or OFAs. To suit the needs of a Region, sections of this template may be deleted if deemed inapplicable. *****

FEMA

{Insert CTP Name(s)}
COOPERATING TECHNICAL PARTNERS
RISK MAP FLOOD STUDY MAPPING ACTIVITY STATEMENT

Mapping Activity Statement No. {Insert Mapping Activity Statement Number }

In accordance with the Cooperating Technical Partners (CTP) Partnership Agreement dated {Insert CTP Partnership Agreement date} between {Insert CTP name}, and the Federal Emergency Management Agency (FEMA), Mapping Activity Statement (MAS) No. {Insert MAS No.} is as follows:

OR

FEMA

STATEMENT OF WORK
{Insert PTS or OFA Name(s)}
CONTRACT NO. _____
TASK ORDER NO. ____

The Risk MAP Project described in this Statement of Work (SOW) shall be completed in accordance with Contract No. {Insert PTS Contract, Task Order Date} dated {Insert date contract signed}, between {Insert PTS, OFA name} and FEMA.

Contents

SECTION 1—OBJECTIVE AND SCOPE

The objective of the Risk MAP Project documented in this {MAS/SOW} is to develop and / or support a Flood Insurance Rate Map (FIRM) and Flood Insurance Study (FIS) report, for {insert name of study area}.

All processes and deliverables shall be completed in accordance to the Federal Emergency Management Agency's (FEMA's) Guidelines and Specifications (G&S) for Flood Hazard Mapping Partners and effective Procedure Memoranda (PMs). These documents can be found on FEMA's website at http://www.fema.gov/plan/prevent/fhm/gs_main.shtm and http://www.fema.gov/plan/prevent/fhm/gs_memos.shtm. PMs are used to implement updates to the G&S, to provide additional clarification of procedures that are not documented in published guidance documents, and to establish procedures and policies. Should a PM require a scope change, CTPs should work through the change process by submitting Special Problem Reports (SPR) to the appropriate Regional office. While not mandatory to implement, Operating Guidance (OGs) documents are available to assist CTPs. OGs contain best practices and clarifications for the G&S and PMs. These documents can be found on FEMA's website at http://www.fema.gov/plan/prevent/fhm/og_main.shtm.

The FIRM and FIS report will be produced for the watersheds and areas identified in Table 1.1, in the North American Vertical Datum of 1988 (NAVD88). Additionally, a watershed report for the watersheds will be created and distributed to identified counties/parishes. (Refer to PM 41 for exceptions.) The counties/parishes in which studies will be performed and their applicable watersheds are summarized in Table 1.1, Counties/Parishes and Watersheds Included in Study. Please note that the watersheds, counties and parishes that are listed in Table 1.1 need to include those that are funded for Discovery only and topography as well as for FIRM/FIS projects.

Table 1.1 – Counties/Parishes and Watersheds Included in Study

Watershed	HUC-8 Code	Counties/Parishes and Communities Included in Project	Project Type (Topo Only, Discovery, FIRM/FIS)

In addition, the Mapping Partners involved in this project will develop new and/or updated flood hazard data, as summarized in Table 1.2, Total Stream Mile Counts by Type of Study.

Table 1.2 – Total Stream Mile Counts by Type of Study

	Coastal	Detailed (Enhanced Level 1)	Limited Detailed (Enhanced Level 2)	Approximate (Base Level Study)	Redelineation	Verified Digital Conversion
Effective Flood Insurance Study						
Updated Effective Studies	Wave / Surge	New / Leveraged	AE / A			AE / A
New Studies Identified		New / Leveraged	AE / A			

*Details on type of study will be documented in Full Project Scope Deliverable from Scoping task identified in an attached Appendix.

This Risk MAP Project will be completed by the following entities:

- {Insert CTP name};
- {Insert name of CTP contractor, if applicable}; and
- {Insert name of PTS, IDIQ, OFA or other FEMA Study Contractor, if applicable}.

The Mapping Partner shall notify FEMA and all applicable parties of all meetings with community officials, and other relevant meetings, at least two weeks prior to the meeting (with as much notice as possible). FEMA and/or its contractor may or may not attend the community meetings.

The Mapping Partner shall maintain an archive of all data submitted. (All supporting data must be retained for three years from the date a funding recipient submits its final expenditure report to FEMA.)

{Insert name of responsible CTP} is responsible for the implementation of an independent Quality Assurance/Quality Control (QA/QC) plan for all assigned activities. The {Insert name of responsible CTP}will submit a Summary Report that describes and provides the results of all automated or manual QA/QC review steps. The report should include the process for all assigned activities.

Independent QC review activities may be performed by the {CTP, PTS, OFA} or FEMA's contractor at the discretion of FEMA. If the {CTP, PTS, OFA} will be responsible for the QC review, the entity that will perform QC should be identified during scoping. The {CTP, PTS, OFA} will need to submit its QC plan to the Regional Project Officer for approval. Please note FEMA will also be performing periodic audits and overall study/project management to ensure study quality. Whether or not the {CTP, PTS, OFA} performs the QC review, the {CTP, PTS, OFA} will be responsible for addressing any and all comments resulting from independent QA reviews, including re-submittal of deliverables as needed to pass technical review. The {Insert name of responsible CTP} will submit Risk MAP products to FEMA's designated reviewer for QC prior to public issuance.

Metadata is required for all activities. {Insert appropriate Data Capture Standards (DCS) language applicable to this Mapping Activity Statement. See draft DCS language and coordinate with the Region regarding its appropriate usage.}

FIRM-related tasks require a passing QC Report from FEMA's National FIRM database auto-validation tool for Quality Review (QR) #1, #2, and #5 as described in PM 42. Training materials for this step are available on the Mapping Information Platform (MIP) at MIP User Care>Training Materials.

FEMA will provide download/upload capability for data submittals through the MIP located at https://hazards.fema.gov. As each activity is completed, the data must be submitted to the MIP.

The {Insert name of responsible CTP} assigned the activity will respond to any comments generated as a result of the mandatory quality control checks by the Production and Technical Services contractor (PTS) as described in PM 42. The PTS QC process is nationally funded and required on each non-PTS study.

In cooperation with the FEMA Project Officer, a Project Management Team (PMT) will be established by the {Insert name of responsible CTP}consisting of representatives from the PMT, FEMA's regional engineer, the Regional Support Center (RSC), and other appropriate parties. The PMT will be responsible for coordinating the activities identified in this {MAS/SOW}. The FEMA Region will be provided with documentation identifying the established PMT.

Earned Value Data Entry: The MIP Workflow is designed to track the Earned Value of mapping projects. This information is automatically calculated by the MIP, using the Actual cost and schedule of work performed, or "actuals" and comparing them to the expected cost and schedule of work performed, or "baseline".

Once the FEMA Regional office has funded a project {Insert name of FEMA or PTS}, will complete the "Obligate Project Funds" screen in the MIP. This step establishes the baseline for the project in the MIP, using the cost and schedule information for each task as outlined in this document and agreed to at the completion of the scoping process.

The MIP study workflow allows {Insert name of responsible Mapping Partner} to manage the status of these projects at a task level. The cost and schedule information, updated by the {Insert name of responsible Mapping Partner} for each contracted task, is compared to the baseline established for those tasks. This information is rolled up to a project level and monitored by the FEMA Region to assess progress and Earned Value.

Earned Value data entry involves updating cost, schedule and performance (physical percent complete) in the MIP by the {Insert name of responsible Mapping Partner}.

{Insert name of responsible Mapping Partner} shall contact the Region / RSC lead to obtain the guidance document *Risk MAP Products in the MIP* which explains how Non-Regulatory Products shall be submitted through the MIP. The guidance also explains how performance will be tracked for Non-Regulatory Products.

Once the baseline has been established in the MIP, the {Insert name of responsible Mapping Partner} shall input the performance and actual cost to date for each contracted task for each project. This must be completed at a minimum by every thirty days and at the completion of the task. When a task is completed, including all QA/QC activities in this MAS plus the Quality Control Reviews established in PM 42, the {Insert name of responsible Mapping Partner} shall enter 100% complete, enter the actual

completion cost, and the actual completion date within the Manage Data Development, Manage Preliminary Map Production, or Manage Post Preliminary Processing, as applicable. The "Manage" tasks will be open and accepting updates for up to 90 days after the completion of the last producer task in each module. The MIP shall also be populated with appropriate leverage information regarding who paid for the data provided and the amount of data used by the Risk MAP Project. The {Insert name of responsible Mapping Partner} will maintain a Schedule Performance Index (SPI) and Cost Performance Index (CPI) of at least .92. SPRs must be submitted in a timely manner as required.

The Project Officer, as needed, may request additional information on status on an ad hoc basis.

<Add/delete/modify information activities, as necessary>

Project Management

(Optional)

Responsible Mapping Partner: {Insert name of responsible Mapping Partner}

Scope: Project Management is the active process of planning, organizing, and managing resources toward the successful accomplishment of pre-defined project goals and objectives. The {Insert name of responsible Mapping Partner} will coordinate with the FEMA Regional Office with respect to Project Management activities and technical mapping activities.

<Add additional details regarding the scope of this activity, as appropriate>

Standards: All Project Management work shall be performed in accordance with the standards specified in Section 5 - Standards.

<Add, modify, or delete deliverables below, as necessary>

Deliverables:

- Monthly Earned Value data reporting through the MIP with variance explanations to support management of technical mapping activities within specified timeframe, for both Regulatory and Non-Regulatory Products;
- Management of SPI/CPI performance for an organization;
- Overall project QA/QC maintenance information, such as maintaining a QA/QC log and providing a QA/QC approach to FEMA for review and approval; and
- Management of adherence to scope of work and quality of work for an organization.

Project Risk Identification and Mitigation

Responsible Mapping Partner: {Insert name of responsible Mapping Partner}

Threats to the planned completion of a project may come from various sources. Risks should be identified during the planning phase and monitored throughout the project so that potential impact can be assessed and solution strategies developed and implemented as needed.

<Add risk, impact and solution strategy information below, as necessary>

Table 1.3 – Project Risk Identification

Project Risk	Potential Impact	Solution Strategy

Perform Discovery

Responsible Mapping Partner: {Insert name of responsible Mapping Partner}

Scope: Discovery begins once a watershed has been prioritized and sequenced. Discovery is the process of evaluating a watershed in order to determine whether a Risk MAP Project is appropriate. A Risk MAP project may include regulatory mapping, risk assessment, Mitigation Planning Technical Assistance, and outreach and communications assistance; the Risk MAP project may include one of these elements or all of these elements, depending on the need in the watershed. Discovery is divided into five main activities – Watershed Stakeholder Coordination, Data Analysis, Discovery Meeting, Post-Meeting Coordination, and Scope Refinement.

Numerous templates have been created to aid {Insert name of responsible Mapping Partner} during Discovery. Please contact the Region / RSC lead to obtain the templates. These templates can be utilized during Discovery as necessary and appropriate for the project. Mapping Partners may revise or change templates as needed.

Stakeholder Engagement

Stakeholder engagement begins with up-front coordination with the Project Management Team to plan the Discovery effort, identify roles and responsibilities, and plan the level of stakeholder engagement. Coordination with this team, including State and FEMA representatives with mapping, risk, and mitigation expertise, should be ongoing throughout Discovery. In addition to collecting data from national and State datasets and mitigation plans, information about communities is collected through two-way information exchange before the Discovery Meeting.

Data Analysis

Data and information collected during the initiation stakeholder engagement phase, along with a robust, thoughtful analysis, is included in a Discovery Report and Map. A draft version of the Discovery Report and Map shall be shared with stakeholders before or during the Discovery Meeting.

Discovery Meeting

All communities and other stakeholders as identified by the Project Management Team are invited to the Discovery Meeting. The Discovery Map will act as a facilitation tool during to meeting to support discussions about Risk MAP, the watershed vision, local flood-related concerns and potential mitigation strategies, regulatory map study needs, risk assessment, and local communication capabilities and responsibilities. Newly-identified or improved mitigation strategies should be documented at the meeting, as well as support needed for communities to advance mitigation actions.

Post Meeting Coordination

After the Discovery Meeting, the Mapping Partner shall provide meeting notes, outreach materials, and updated contacts to the attendees and stakeholders. The Mapping Partner will update the Discovery Map and Report to reflect the meeting discussions and include recommendations for a Risk MAP project. The final Discovery Map, Report, and appropriate data are provided to stakeholders.

Database Updates

After the Discovery Meeting, four databases must be updated:

- The CNMS Regional File Geodatabase shall be updated to reflect information gathered during Discovery, including stream reaches identified for study /restudy and any areas with remaining needs and/or requests as appropriate;
- The National Digital Elevation Program website must be updated, as appropriate, to reflect data collected;
- The National Digital Orthophoto Program website must be updated, as appropriate, to reflect data collected; and
- The final Discovery Report, Map, and appropriate data must be uploaded to the MIP.

< Scope Refinement and project charters can happen as part of Discovery, or as part of a Risk MAP project. The Scope Refinement section should be removed if the effort will be performed well after Discovery is completed.>

Scope Refinement

If it is decided that a Risk MAP project will move forward, {Insert FEMA OR the Mapping Partner} shall work with communities to refine the scope of the project, and update the Discovery Report accordingly. {Insert FEMA OR the Mapping Partner} will use a project charter to document the Risk MAP project scope, roles and responsibilities of the community and the Project Team. Project charters are distributed to each community affected by a planned Risk MAP project and {Insert FEMA or the Mapping Partner} will track the number of signed charters.

Standards: All Discovery process work shall be performed in accordance with the standards specified in Section 5 - Standards. The primary guidance for Discovery is in FEMA's Guidelines and Specifications Appendix I (finalized in June 2011) and OG-4-11: *Risk MAP Meetings Guidance.*

<Add, modify or delete deliverables below, as necessary>

Deliverables: {Insert name of responsible Mapping Partner} shall make the following products available to FEMA by uploading the digital data to the MIP.

- Final Discovery Report, including final or recommended Risk MAP project activities, the ability of these activities to meet metrics, and assessment of community communication capabilities;
- Final Discovery Map;
- Charter records: the number of communities that were offered a charter and the number of signed charters returned to the Mapping Partner from communities;
- A report that should include a list of watersheds and affected communities to undergo Risk MAP projects and a clear assessment of ability of the proposed project to meet metrics;
- QA/QC Plan for the review of the mapping project outlined in this {MAS/SOW}. This will include the checklists developed for that review in accordance with the schedule included in Section 6 – Schedule;
- Updated list of CEO or local FPA contacts or a report from CIS showing this information has been updated;
- Update leverage data in MIP;
- Report documenting levee information transmitted to the FEMA Regional office and/or the PMT;
- CNMS Regional File Geodatabase updated to reflect changes to the existing inventory in study extents and attributes as identified during the Discovery process. The updated CNMS Regional File Geodatabase shall be delivered to the respective FEMA Region or its designee within 15 days of completion of the Scoping effort;
- Report showing that, if obtained from non-Federal sources, information on available terrain and ortho-imagery data has been entered into the NDEP and NDOP project tracking Web sites, respectively;
- Watershed Engagement Plan;
- Community Assessment Tool;
- Other deliverables including correspondence, reports, agenda, maps, meeting notes and summaries, tabular data, and geospatial files to be submitted throughout the discovery process; and
- For leverage data, evidence that the providing partner is aware of the delivery deadlines and scope for deliverable products, and that they are capable of meeting those requirements.

Perform Project Outreach

(NOTE: The performance of outreach takes place throughout the life of the flood study project. Work with your Region to develop a Project Outreach Plan (POP). An alternate tracking method is acceptable with approval from the FEMA Regional Office.)

Responsible Mapping Partner: {Insert name of responsible Mapping Partner}

Scope: This Risk MAP project will include {insert # of meetings} in-person opportunities to engage communities, build risk awareness, increase capabilities for risk communication, and stimulate mitigation action at the local level. The overarching goal is to create a climate of understanding and ownership of the mapping process at the State and local levels. Well-planned and executed community engagement can reduce political stress, confrontation in the media, and public controversy, which can arise from lack of information, misunderstanding, or misinformation. These outreach activities also can assist FEMA, the Mapping Partner, and other members of the PMT in responding to congressional inquiries.

The actual number of meetings will be determined based on the risk and need at the local level and determined as part of developing the project-based communication plan. Provisions may be made for remote access video/audio feeds for those that cannot attend in person. These opportunities consist of:

Project Initiation Meeting/Coordination Call. <Though not required, this call is especially helpful for introducing the project to the involved communities when 6 months or more has passed since the post-Discovery scope refinement coordination.> This meeting will serve to introduce the communities to the PMT, project scope and timeline, expectations for communities with risk communication, methods and data to be used mapping efforts, and to answer any local questions about the project. This can be held as an in-person meeting, webinar, or conference call.

Discovery Meeting. This meeting is held to engage communities, understand the communities' and watershed's needs, inform the purpose of FEMA's engagement, balance FEMA resources, and plan project execution. **(If Discovery is included as a separate task within this MAS, note that here.)**

Flood Risk Review Meeting. <Though the Flood Risk Review Meeting is not required for a Risk MAP project, it is strongly encouraged.> This meeting will serve to provide communities with engineering data and drafts of flood risk (non-regulatory) products, collect feedback, and revise as needed. It will also provide FEMA the opportunity to show how the datasets and outreach tools can help communities become more resilient by understanding risk data, communicating about risk, prioritizing mitigation actions and improving mitigation plans, especially risk assessments and mitigation strategies.

Resilience Meeting. The meeting will provide a comprehensive view of mitigation planning, mitigation options available to communities, sharing of success stories, and potential mitigation actions that communities can initiate. Mitigation strategies that communities have implemented or progressed on since Discovery should be documented at, or before, this meeting. In addition, discussions about a community's outreach plans during this meeting help enable local officials to begin or strengthen local risk communication.

Final (CCO) Meeting and Public Meeting (or Open House). If regulatory products are included in a Risk MAP project, these meetings will provide local officials an opportunity to verify the appropriate revisions have been made to previously demonstrated information, take ownership of the products, and deliver the results of the project to the local citizenry. Risk MAP production team support will be provided to support the local officials, or deliver the messages, at the Public Meeting if the local

officials are unwilling. Also, communities will be encouraged to identify short- and long-term efforts to progress towards increasing flood risk awareness and management. (These meetings can be held concurrently or separately at the Region and community's discretion.)

For all meetings, provisions may be made for remote access video/audio feeds for those that cannot attend in person.

In addition to Risk MAP meetings, in order to facilitate information sharing and a continuing dialogue between the PMT and the community, the {Insert name of responsible Mapping Partner} will provide communities with a regular status reports outlining the current project status, key accomplishments to date, identified risks, if any, and next steps including estimated next meeting date and meeting content (template to be provided from FEMA or can be created by Mapping Partner). These status reports will be provided to FEMA for review before electronic distribution. Project update status reports will be distributed to communities at mid-points between each of the meetings, and between the Final Meeting and effective date (for a total of four), to help introduce and prepare the communities for upcoming discussions.

The {Insert name of responsible Mapping Partner} will work with the Regional Office during the initiation of this activity to develop the Project Communications Plan to support the implementation of the mapping project. The Regional Office will have access to many customizable outreach tools that have been developed for this process to support each touchpoint that the PMT has with the community. Volume 1 of the G&S provides specific outreach goals that can be considered

Standards: The primary guidance for Risk MAP Meetings is in OG-4-11: *Risk MAP Meetings Guidance.* All communication with local governments will be done in accordance with 44 CFR Part 66.

Deliverables: The {Insert name of responsible Mapping Partner}shall deliver the following to the FEMA Regional Project Officer in accordance with the schedule outlined in Section 6 – Schedule and include within the TSDN:

- A Project Communication Plan detailing outreach and coordination activities;
- Meeting invitation, agenda, presentation slides (as requested), and meeting notes for FEMA review; and
- Project update status reports for project communities.

Develop Non-Regulatory Products

Responsible Mapping Partner: {Insert name of responsible Mapping Partner}

Scope: Risk assessment data and analyses are defined as processes for analyzing or evaluating the risk associated with a hazard, and using that information to make informed decisions on the appropriate ways to reduce the impacts of the hazard on people and property. As part of the Risk MAP Program, non-regulatory Flood Risk Products shall be developed for study areas.

Flood Risk Products: The Mapping Partner will develop the following standard non-regulatory products for the watersheds, as identified in Table 1.4:

- Flood Risk Database;

- Flood Risk Report; and
- Flood Risk Map.

Flood Risk Datasets: The Mapping Partner will develop the following Flood Risk Datasets, as identified in Table 1.4:

- Changes Since Last FIRM dataset;
- Depth & Analysis Grids dataset;
- Flood Risk Assessment dataset; and
- Areas of Mitigation Interest (AOMI) (optional, as defined by the FEMA Regional Project Officer).

Flood Risk Assessment Datasets shall be incorporated into the standard Flood Risk Products.

Table 1.4 – Risk Assessment Product Development Table

Watershed(s) and/or Project Areas	Flood Risk Products	Flood Risk Datasets				
		CSLF	Depth & Analysis Grids	Flood Risk Assessment	AOMI	Other (add description)
Watershed X	X					
PMR Area Y	X					
Watershed Z	X	X	X	X	X	

Standards: All Risk MAP work shall be performed in accordance with the standards specified in Section 5 - Standards. *Please contact the Region or RSC lead to obtain draft appendices.* FEMA's Operating Guidance document OG 6-11 *User Guidance for Flood Risk Datasets and Products* is available from the following website: http://www.fema.gov/plan/prevent/fhm/og_main.shtm. The Mapping Partner shall contact the Region / RSC lead to obtain the guidance document *Risk MAP Products in the MIP* (March 4, 2011) which explains how Non-Regulatory Products shall be submitted through the MIP.

Deliverables: The following products, for those communities identified in Table 1.1 will be made available to FEMA and uploaded to the MIP as appropriate:

- Flood Risk Report, Map, and Database;
- Changes Since Last FIRM dataset;
- Depth and Analysis Grids dataset;

- Flood Risk Assessment dataset;
- Areas of Mitigation Interest dataset (optional, as defined by the FEMA Regional Project Officer); and
- Other dataset.

Perform Field Survey

<Mapping Partners <u>may consider</u> including and completing this task in the MIP if the {Insert name of responsible Mapping Partner}**believes data will need to be submitted during the course of the project, even if this task was not included in the SOW. In addition, leveraged field survey data must be documented and submitted for this task. Failure to submit this data could result in the workflow being reverted back to production tasks and could lead to a delay in the schedule. If the Responsible Mapping Partner obtains field survey data that was not included in the SOW, the Responsible Mapping Partner shall contact the Region/RCS Lead to request that this task be added to the MIP workflow.>**

<u>Responsible Mapping Partner</u>: {Insert name of responsible Mapping Partner}

<u>Scope</u>: To supplement any field reconnaissance conducted during the Project Discovery phase of this project, {Insert name of responsible Mapping Partner} shall conduct a detailed field reconnaissance of the specific study area to determine conditions along the floodplain(s), types and numbers of hydraulic and/or flood-control structures, apparent maintenance or lack thereof of existing hydraulic structures, locations of cross sections to be surveyed, and other parameters needed for the hydrologic and hydraulic analyses.

{Insert name of responsible Mapping Partner} shall conduct field surveys, including obtaining channel and floodplain cross sections, identifying or establishing temporary or permanent bench marks, and obtaining the physical dimensions of hydraulic and flood-control structures. If appropriate, the {Insert name of responsible Mapping Partner} shall also identify items needed for coastal analyses including land cover, vegetation types, housing, dunes, beach nourishment, and coastal structures. {Insert name of responsible Mapping Partner} also shall coordinate with other entities that are involved in the Topographic Data Development process regarding ongoing activities and deliverables.

<Add additional details regarding the scope of this task, as appropriate>

<u>Standards</u>: All Field Survey work shall be performed in accordance with the standards specified in Section 5 - Standards.

<u>Deliverables</u>: {Insert name of responsible Mapping Partner} shall make the following products available to FEMA by uploading the digital data to the MIP, in accordance with the schedule outlined in Section 6:

<Add, modify or delete deliverables below, as necessary>

- A report summarizing the findings of the field reconnaissance;
- Maps and drawings that provide the detailed survey results;
- Survey notebook containing cross section and structure data;
- Documentation of the horizontal and vertical datum;

- Digital versions of draft text for inclusion in the FIS report;
- Digital survey data consistent with the DCS (see draft DCS language and coordinate with the Region regarding its appropriate usage) as described in the G&S;
- Metadata file complying with the NFIP Metadata Profiles Specifications;
- Support documentation and Certification of Work;
- TSDN, where appropriate;
- Where paper documentation is required by State Law for Professional certifications, the Mapping Partner may submit the paper in addition to a scanned version of the paper for the digital record. Please coordinate with the Regional and/or State representative to verify state reporting requirements; and
- A Summary Report that describes and provides the results of all automated or manual QA/QC review steps taken during the preparation of the FIRM as outlined in the approved QA/QC Plan.

Develop Topographic Data

<Every MAS for a flood data update must include this task to ensure the topography used is documented and submitted. In addition, leveraged topographic data must be documented and submitted for this task. Normally this task will be assigned to the same mapping partner that will be the primary user (i.e. hydraulics or floodplain mapping).>

Responsible Mapping Partner: {Insert name of responsible Mapping Partner}

Scope: Topographic/elevation data may be new or existing. New is defined as data that will be flown and processed for the areas specified in this MAS study areas according to the referenced specifications. Existing topographic/elevation data (previously flown and/or processed) may be used to produce flood studies and related products. However, if new data is not to be collected, the FEMA Region should be consulted before leveraging the best available existing topographic to ensure acceptability for the intended level of flood hazard study.

{Insert name of responsible Mapping Partner} shall obtain additional topographic data for the floodplain areas to be studied including overbank areas. These data will be used <add or delete as needed>for hydrologic analysis, hydraulic analysis, coastal analysis, floodplain boundary delineation and/or testing of floodplain boundary standard compliance. {Insert name of responsible Mapping Partner} shall gather availability, currency, and accuracy information for existing topographic data covering the affected communities in this MAS. {Insert name of responsible Mapping Partner} shall use topographic data for work in this MAS only if it is better quality than that of the original study or effective studies. The Mapping Partner will ensure that the FEMA Geospatial Data Coordination Policy and Implementation Guide is followed and the data obtained or to be produced are documented properly as per those policies and guidelines.

{If necessary, describe additional steps that may need to be taken to use the available data.}

Requirements for New Topographic Data:

<Optional Paragraph> {Insert name of responsible Mapping Partner} shall generate new topographic data for areas defined in Table 1.5. {Insert name of responsible Mapping Partner} also shall coordinate with team members conducting field surveys as part of this MAS. Accuracy for the topographic data shall be selected based on the current FEMA requirements as documented in the G&S Appendix A and Procedure Memorandum 61 and generally will correspond with the level of detail for the flood hazard study to be conducted with this topographic data. For this activity, {Insert name of responsible Mapping Partner} also shall generate the data collected under this Topographic Data Development task and via field surveys to create a best available digital elevation model for the subject flooding sources. In addition, {Insert name of responsible Mapping Partner} shall address all concerns or questions regarding the topographic data development and processing that are raised by {Insert name of responsible Mapping Partner} during the independent QA/QC review. {Insert name of responsible Mapping Partner} should confirm with the FEMA Project Officer the appropriate data model(s) (i.e. Digital Elevation Models (DEMs), TIN, mass points and breaklines) for the intended use of the data <Add additional details regarding the scope of this task, as appropriate.>

Requirements for leveraging existing Topographic Data:

<Include this paragraph if existing topographic data will be used in the course of completing this MAS> {Insert name of responsible Mapping Partner} shall use topographic data for the areas described in the

Table 1.5 Summary of Topographic Data table. The source of the topographic data must be listed as well. The {Insert name of responsible Mapping Partner} shall coordinate with other team members conducting field surveys as part of this MAS. Accuracy for the topographic data shall be evaluated based on the current FEMA requirements for flood hazard study level of detail as documented in G&S Appendix A and Procedure Memorandum 61.

{Insert name of responsible Mapping Partner} also shall update the topographic maps and/or DEMs for the subject flooding sources using the data collected under this Topographic Data Development process and via field surveys. In addition, {Insert name of responsible Mapping Partner} shall address all concerns or questions regarding the topographic data development that are raised by {Insert name of Mapping Partner responsible for this activity} during the independent QC review, or during the PM 42 defined Validation Process.

Table 1.5 – Summary of Topographic Data

Watershed/ Flooding Source	Beginning and End Points of Topo Data Collection	New/Existing OR Leveraged	Accuracy & Year Acquired	Source/ Data Vendor	Contact Information	Use Restrictions
				Public domain, community supplied, procured as part of this activity, etc.		

Standards: All Topographic Data Development work shall be performed in accordance with the standards specified in Section 5 - Standards.

Deliverables: In accordance with the G&S, {Insert name of responsible Mapping Partner} shall make the following products available to FEMA by uploading the digital data to the MIP in accordance with the schedule outlined in Section 6 – Schedule:

<FEMA Region - Add, modify or delete deliverables below, as necessary. Only include data formats needed for the project or as appropriate for leveraged data>

- Digital contour data;
- Report summarizing methodology and results;
- Mass points and breaklines data;
- Gridded digital elevation model data;
- TIN data;

- Checkpoint analyses to assess the accuracy of data, including Root Mean Square Error calculations to support vertical accuracy;
- Identification of data voids and methods used to supplement data voids;
- National Geodetic Survey data sheets for Network Control Points used to control remote-sensing and ground surveys;
- Other supporting files consistent with the DCS in the G&S (see draft DCS language and coordinate with the Region regarding its appropriate use);
- A Summary Report that describes and provides the results of all automated or manual QA/QC review steps taken during the preparation of the FIRM as outlined in the approved QA/QC Plan;
- A narrative describing the scope of work, direction from FEMA, issues, information for next mapping partner, etc.;
- Metadata file complying with the NFIP Metadata Profiles Specifications;
- Support documentation and Certification of Work;
- TSDN, where appropriate;
- Where paper documentation is required by State Law for Professional certifications, the Mapping Partner may submit the paper in addition to a scanned version of the paper for the digital record. Please coordinate with the Regional and/or State representative to verify state reporting requirements; and
- Updates to the National Digital Elevation Program (NDEP) project tracking at http://www.ndep.gov/.

Perform Independent QA/QC: Topographic Data

Responsible Mapping Partner: {Insert name of responsible Mapping Partner}

Scope: {Insert name of responsible Mapping Partner} shall perform an impartial review of the mapping data defined in Table 1.5 under Develop Topographic Data to ensure that these data are consistent with FEMA standards and standard engineering practice, and are sufficient to prepare the FIRM. FEMA may audit or assist in these activities if deemed to be necessary by the Regional Project Officer.

Please note FEMA will also be performing periodic audits and overall study/project management to ensure study quality. The {CTP, PTS, OFA} will be responsible for addressing any and all comments resulting from independent QC, including re-submittal of deliverables as needed to pass technical review.

<Add additional details regarding the scope of this task, as appropriate>

Standards: All Topographic Data Development work shall be reviewed in accordance with the standards specified in Procedure Memorandum 61 and in Section 5 – Standards.

Deliverables: In accordance with the G&S, {Insert name of responsible Mapping Partner} shall make the following products available to FEMA by uploading the digital data to the MIP, in accordance with the schedule outlined in Section 6 – Standards:

<Add, modify or delete deliverables below, as necessary>

- A Summary Report that describes the findings of the independent QA/QC review;
- Confirmation of update(s) made to the NDEP;
- Recommendations to resolve any problems that are identified during the independent QA/QC review; and
- TSDN, where appropriate.

Acquire Base Map

<Every MAS for a flood data update must include this task to ensure the base map used is documented and submitted. In addition, leveraged base map data must be documented and submitted for this task. Normally it will be assigned to the same mapping partner that will be the primary floodplain mapping partner.>

Responsible Mapping Partner: {Insert name of responsible Mapping Partner}

Scope: Base Map Acquisition consists of obtaining the digital base map, {specify Raster and/or Vector data}, for the project and as necessary, preparing the base map for use. {Insert name of responsible Mapping Partner} shall provide the digital base map, including:

- Obtain digital files (raster or vector) of the base map. In coordination with the partner who performed Project Discovery, ensure that the FEMA Geospatial Data Coordination Policy and Implementation Guide are followed;
- Secure necessary permissions from the map source to allow FEMA's use and distribution of hardcopy and digital map products using the digital base map, free of charge;
- Review and supplement the content of the acquired base map to comply with the requirements of the G&S;
- For the base map components that have a mandatory data structure, convert the base map data to the format required in the G&S; and
- Certify that the digital data meets the minimum standards and specifications that FEMA requires for FIRM production.

<Optional Paragraph and Table, as appropriate> In addition, the Mapping Partner shall address all concerns or questions regarding the base map that are raised during the Independent QC review, or during the PTS's Validate Content Submission Process. Table 1.6 is useful if multiple counties are involved with this map update.

Table 1.6 – Summary of Planned Base Map (if known): (Any additional base map information that is discovered after the MAS/SOW has been completed shall be recorded in the Discovery Report)

Data	New / Existing	Leveraged	Study Area	Accuracy and Year Acquired	Source/ Data Vendor	Contact Information	Use Restrictions

Data	New / Existing	Leveraged	Study Area	Accuracy and Year Acquired	Source/ Data Vendor	Contact Information	Use Restrictions
Orthophotos/ Aerial Photographs							
Hydrography							
PLSS							
Corporate Boundaries							
Transportation Features							
High Water Marks							
Benchmarks							
(Enter additional base map data as necessary)							

Standards: All Base Map Acquisition work shall be performed in accordance with the standards specified in Section 5 – Standards. The DCS must be met for this deliverable to be acceptable.

Deliverables: In accordance with the G&S Volume 1 and Appendices K, L, N and O, {Insert name of responsible Mapping Partner} shall make the following products available to FEMA by uploading the digital data to the MIP so that {Insert name of Mapping Partner responsible for Independent QA/QC} can access it for an independent QA/QC review in accordance with the schedule outlined in Section 6 – Schedule.

<Add, modify or delete deliverables below, as necessary>

- Metadata file complying with the NFIP Metadata Profiles Specifications;
- Digital base map files that comply with the G&S requirement;
- Written certification that the digital data meet the minimum standards and specifications;
- Digital versions of draft text for inclusion in the FIS report;
- Documentation that FEMA can use the digital base map;
- Documentation of the Horizontal and Vertical Datums;
- Additional Base Map acquisition correspondence; and
- Updates to the National Digital Orthophoto Program (NDOP) project tracking at http://www.ndop.gov/ (This is required for new data collection only.)

Perform Independent QA/QC: Base Map

Responsible Mapping Partner: {Insert name of responsible Mapping Partner}

Scope: {Insert name of responsible Mapping Partner} shall perform an impartial review of the base map acquired by {Insert party responsible for acquiring the Base Map} to ensure it includes data consistent with FEMA standards and sufficient to include on the FIRM. Any needed edits should be made to the product to comply with FEMA standards.

Please note FEMA will also be performing periodic audits and overall study/project management to ensure study quality. The {CTP, PTS, OFA} will be responsible for addressing any and all reasonable comments resulting from independent QC of the Base Map, including re-submittal of deliverables as needed to pass technical review.

<Add additional details regarding the scope of this task, as appropriate>

Standards: All Independent QA/QC work shall be performed in accordance with the standards specified in Section 5 - Standards.

Deliverables: In accordance with the G&S, {Insert name of responsible Mapping Partner} shall make the following products available to FEMA by uploading the digital data to the MIP, in accordance with the schedule outlined in Section 6 - Schedule.

<Add, modify or delete deliverables below, as necessary>

- A Summary Report that describes the findings of the independent QA/QC review;
- Confirmation that the data was submitted under the applicable HUC-8 folders;
- Confirmation that updates were made to NDOP, if appropriate;
- Recommendations to resolve any problems that are identified during the independent QA/QC review; and
- If the data is changed during review, then updated deliverables from previous tasks will be submitted at this time.

Develop Hydrologic Data

<Mapping Partners may consider including and completing this task in the MIP if the {Insert name of responsible Mapping Partner}**believes data will need to be submitted during the course of the project, even if this task was not included in the SOW. In addition, leveraged hydrologic data must be documented and submitted for this task. Failure to submit this task when data should have been submitted could result in the workflow being reverted back to production tasks and could lead to a delay in the schedule. If the Responsible Mapping Partner obtains hydrologic data that was not included in the SOW, the Responsible Mapping Partner shall contact the Region/RCS Lead to request that this task be added to the MIP workflow.>**

Responsible Mapping Partner: {Insert name of responsible Mapping Partner}

Scope: {Insert name of responsible Mapping Partner}shall perform hydrologic analyses for approximately {insert number of square miles} square miles of drainage area for the flooding source(s) identified in Table 1.7. {Insert name of responsible Mapping Partner} shall calculate peak flood discharges for the 10-,4-,2-, 1- and 0.2- percent-annual-chance events using the {Insert name of program

or method}the computer program as defined in Table 1.7. These flood discharges will be the basis for subsequent Hydraulic Analyses performed under this {MAS/SOW}. In addition, {Insert name of responsible Mapping Partner}shall address all concerns or questions regarding the hydrologic analyses that are raised during the independent QA/QC review performed by {Insert name of Mapping Partner responsible for Independent QA/QC} during the QA/QC review.

<Optional paragraph for GIS-based modeling> If GIS-based modeling is used, {Insert name of responsible Mapping Partner}shall document automated data processing and modeling algorithms, and provide the data to FEMA to ensure these are consistent with FEMA standards. Digital datasets (such as elevation, basin, or land use data) are to be documented and provided to FEMA for approval before performing the hydrologic analyses to ensure the datasets meet minimum requirements. If non-commercial (i.e., custom-developed) software is used for the analysis, then {Insert name of responsible Mapping Partner}shall provide full user documentation, technical algorithm documentation, and the software to FEMA for review before performing the hydrologic analyses.

Table 1.7 – Summary of Hydrologic Analysis <Include additional columns as needed>

Study Area/Flooding Source	Method	Square Miles of New Hydrology

Standards: All Hydrologic Analyses work shall be performed in accordance with the standards specified in Section 5 - Standards.

Deliverables: In accordance with the G&S, {Insert name of responsible Mapping Partner} shall make the following products available to FEMA by uploading the digital data to the MIP so that {Insert name of Mapping Partner responsible for Independent QA/QC} can access it for an independent QA/QC review in accordance with the schedule outlined in Section 6 - Schedule.

<Include deliverables specific to Limited Detail Study if proposed>

<Add, modify or delete deliverables below, as necessary>

- Digital copies of all hydrologic modeling (input and output) files for the 10-, 4-, 2-, 1- and 0.2-percent-annual-chance events;
- Metadata file;
- Digital Summary of Discharges Tables presenting discharge data for the flooding sources for which hydrologic analyses were performed;
- Digital versions of draft text for inclusion in the FIS report;
- Digital versions of all backup data used in the analysis including work maps;
- Format Hydrology Database or Data Delivery consistent with the DCS–in the G&S of all return periods (see draft DCS language and coordinate with the Region regarding its appropriate use);

- A Summary Report that describes and provides the results of all automated or manual QA/QC review steps taken during the preparation of the FIRM as outlined in the approved QA/QC Plan;
- <Optional for GIS-based modeling> For GIS-based modeling, deliverables shall include all input and output data, and GIS data layers;
- Where paper documentation is required by State Law for Professional certifications, the Mapping Partner may submit the paper in addition to a scanned version of the paper for the digital record. Please coordinate with the Regional and/or State representative to verify state reporting requirements; and
- Summary of the hydrologic analysis for each study area in Table 1.7 Summary of Hydrologic Analysis.

Perform Independent QA/QC: Hydrologic Data

Responsible Mapping Partner: {Insert name of responsible Mapping Partner}

Scope: {Insert name of responsible Mapping Partner} shall perform an impartial review of the technical, scientific, and other information submitted by {Insert name of Mapping Partner responsible for hydrologic analyses} specific to the hydrologic analyses to ensure that the data and modeling are consistent with FEMA standards and standard engineering practice, and are sufficient to prepare the FIRM. FEMA may audit or assist in these activities if deemed to be necessary by the Regional Project Officer. This work shall include, at a minimum, the activities listed below.

Please note FEMA will also be performing periodic audits and overall study/project management to ensure study quality. The {CTP, PTS, OFA} will be responsible for addressing any and all comments resulting from independent QC, including re-submittal of deliverables as needed to pass technical review.

<Delete or add tasks below, as necessary>

- Review the submittal for technical and regulatory adequacy, completeness of required information, and supporting data and documentation. The technical review is to focus on the following:
    - Use of acceptable models;
    - Use of appropriate methodology(ies);
    - Correctly applied methodology(ies)/model(s), including QC of input parameters;
    - Comparison with gage data and/or regression equations, if appropriate; and
    - Comparison with discharges for contiguous reaches or flooding sources throughout the watershed.
- Verify that the data was submitted under the applicable HUC-8 folders;
- Maintain records of all contacts, reviews, recommendations, and actions and make the data readily available to FEMA; and
- If data changed during review, then updated deliverables for previous tasks will be submitted at this time.

Standards: All Independent QA/QC work shall be performed in accordance with the standards specified in Section 5 – Standards.

Deliverables: In accordance with the G&S, {Insert name of responsible Mapping Partner} shall make the following products available to FEMA by uploading the digital data to the MIP. Additionally, the TSDN format described in the G&S must be delivered in accordance with Section 2 – Technical and Administrative Support Data Submittal.

This submittal will occur in accordance with the schedule outlined in Section 6 - Schedule.

<Add, modify or delete deliverables below, as necessary>

- A Summary Report that describes the findings of the independent QA/QC review.
- Recommendations to resolve any problems that are identified during the independent QA/QC review.
- Where paper documentation is required by State Law for Professional certifications, the Mapping Partner may submit the paper in addition to a scanned version of the paper for the digital record. Please coordinate with the Regional and/or State representative to verify state reporting requirements.

Develop Hydraulic Data

<Mapping Partners may consider including and completing this task in the MIP if the {Insert name of responsible Mapping Partner} **believes data will need to be submitted during the course of the project, even if this task was not included in the SOW. In addition, leveraged hydraulic data must be documented and submitted for this task. Failure to submit this task when data should have been submitted could result in the workflow being reverted back to production tasks and could lead to a delay in the schedule. If the Responsible Mapping Partner obtains hydraulic data that was not included in the SOW, the Responsible Mapping Partner shall contact the Region/RCS Lead to request that this task be added to the MIP workflow.>**

Responsible Mapping Partner: {Insert name of responsible Mapping Partner}

Scope: {Insert name of responsible Mapping Partner}shall perform hydraulic analyses as described in Table 1.8. The modeling will include the 10-, 4-, 2-, 1- and 0.2-percent-annual-chance events based on peak discharges computed under Hydrologic Analyses. The hydraulic methods used for this analysis will include base level and enhanced level hydraulic modeling. The base level will use an automated hydraulic model, and use the best available elevation data. It will not include field surveys, floodways, or mapped BFEs. The enhanced level may include field surveys, floodways, and the 10-, 4-, 2-, 1- and 0.2-percent-annual-chance events, using methods described in Table 1.8.

The Mapping Partner shall use the cross-section and field data collected during Field Survey and the topographic data collected during the Topographic Data Collection, when appropriate, to perform the hydraulic analyses. The hydraulic analyses will be used to establish flood elevations and regulatory floodways for the subject flooding sources.

{Insert name of responsible Mapping Partner}shall use the FEMA CHECK-2 or CHECK-RAS checking program to verify the reasonableness of the hydraulic analyses. To facilitate the independent QA/QC

review, {Insert name of responsible Mapping Partner}shall provide explanations for unresolved messages from the CHECK-2 or CHECK-RAS program, as appropriate. In addition, {Insert name of responsible Mapping Partner}shall address all concerns or questions regarding the hydraulic analyses that are raised by {Insert name of Mapping Partner responsible for Independent QA/QC}during the independent QA/QC review.

<Optional paragraph for GIS-based modeling> {Insert name of responsible Mapping Partner}shall document automated data processing and modeling algorithms for GIS-based modeling and provide the data to FEMA for review to ensure these are consistent with the standards outlined above. Digital datasets are to be documented and provided to FEMA for approval before performing the hydraulic analyses to ensure the datasets meet minimum requirements. If non-commercial (i.e., custom-developed) software is used for the analyses, then {Insert name of responsible Mapping Partner}shall provide full user documentation, technical algorithm documentation, and software to FEMA for review before performing the hydraulic analyses.

<Add additional details regarding the scope, as appropriate>

Any flooding sources associated with a levee that are mapped as providing protection on effective FIRMs, but will not meet certification requirements for the new FIRMs, will require revised hydraulic analysis. This revised analysis should be done in accordance with the G&S, PMs 34, 43, 51, 52, 53, 59, 63 and others that may be appropriate.

Table 1.8 – Summary of Hydraulic Data

Study Area/Flooding Source	Method	Total Miles of New Base level or Enhanced Level Hydraulics

Standards: All Hydraulic Data work shall be performed in accordance with the standards specified in Section 5 - Standards.

Deliverables: In accordance with the G&S, {Insert name of responsible Mapping Partner} shall make the following products available to FEMA by uploading the digital data to the MIP so that {Insert name of Mapping Partner responsible for Independent QA/QC} can access it for an independent QA/QC review in accordance with the schedule outlined in Section 6 - Schedule.

<Add, modify or delete deliverables below, as necessary>

- Digital profiles of the 10-, 4-, 2-, 1- and 0.2-percent-annual-chance events, representing existing conditions using the FEMA RASPLOT program or similar software;
- Metadata file;
- Digital Floodway Data Tables for each flooding source that is compatible with the FIRM database;
- Digital hydraulic modeling (input and output) files;

- Digital tables with range of Manning's "n" values;
- Explanations for unresolved messages from the CHECK-2 or CHECK-RAS program, as appropriate;
- Digital versions of all backup data used in the analyses;
- Digital versions of draft text for inclusion in the FIS report;
- Format Hydraulic Database or Data Delivery consistent with the Data Capture Standards–in the G&S (see draft DCS language and coordinate with the Region regarding its appropriate use);
- A Summary Report that describes and provides the results of all automated or manual QA/QC review steps taken during the preparation of the FIRM as outlined in the approved QA/QC Plan;
- <Optional for GIS-based modeling> For GIS-based modeling, deliverables include all input and output data, GIS data layers, and final products in the format of the FIRM database structure;
- Depth grids for all studied streams for all frequencies as required;
- Where paper documentation is required by State Law for Professional certifications, you shall submit the paper in addition to a scanned version of the paper for the digital record. Please coordinate with the Regional and/or State representative to verify reporting requirements for your state;
- Appropriate leverage information includes who paid for the data and the amount of data used by the Risk MAP Project; and
- <Optional Paragraph and Table> In cases where the MAS/SOW includes multiple counties it is beneficial to summarize the hydraulic analysis that will be used for each study area in Table 1.8 Summary of Hydraulic Data. {Insert name of responsible Mapping Partner}shall summarize the hydrologic data for each study area in optional Table 1.8 Summary of Hydraulic Data.

Perform Independent QA/QC: Hydraulic Data

Responsible Mapping Partner: {Insert name of responsible Mapping Partner}

Scope: {Insert name of responsible Mapping Partner} shall perform an impartial review of the technical, scientific, and other information submitted by {Insert name of Mapping Partner responsible for Hydraulic Data}under Hydraulic Analysis to ensure that the data and modeling are consistent with FEMA standards and standard engineering practice, and are sufficient to revise the FIRM. FEMA may audit or assist in these activities if deemed to be necessary by the Regional Project Officer. This work shall include, at a minimum, the activities listed below.

Please note FEMA will also be performing periodic audits and overall study/project management to ensure study quality. The {CTP, PTS, OFA} will be responsible for addressing any and all comments resulting from independent QC, including re-submittal of deliverables as needed to pass technical review.

<Delete or add tasks below, as necessary>

- Review the submittal for technical and regulatory adequacy, completeness of required information, and supporting data and documentation. The technical review is to focus on the following:
    - Use of acceptable model(s);
    - Starting water-surface elevations;
    - Cross-section geometry;
    - Manning's "n" values and expansion/contraction coefficients;
    - Bridge and culvert modeling;
    - Flood discharges;
    - Regulatory floodway computation methods;
    - Tie-in to upstream and downstream non-revised Flood Profiles; and
    - Depth grids
- Verify that the data was submitted under the applicable HUC-8 folders;
- Use the CHECK-2 or CHECK-RAS program, as appropriate, to flag potential problems and focus review efforts;
- Maintain records of all contacts, reviews, recommendations, and actions and make the data readily available to FEMA;
- Maintain an archive of all data submitted for hydraulic modeling review. (All supporting data must be retained for three years from the date a funding recipient submits its final expenditure report to FEMA, and once the study is effective all associated data should be submitted to the FEMA library); and
- If data changed during review, then updated deliverables for previous tasks will be submitted at this time.

Standards: All Independent QA/QC work shall be performed in accordance with the standards specified in Section 5 - Standards.

Deliverables: In accordance with the G&S, {Insert name of responsible Mapping Partner} shall make the following products available to FEMA by uploading the digital data to the MIP, in accordance with the schedule outlined in Section 6 – Schedule.

<Add, modify or delete deliverables below, as necessary>

- A Summary Report that describes the findings of the independent QA/QC review;
- Recommendations to resolve any problems that are identified during the independent QA/QC review; and
- If the data changed during the Hydrologic and/or Hydraulic Analyses QA/QC process, then the updated and verified deliverables from these activities will be resubmitted at this time.

Perform Coastal Analysis

Responsible Mapping Partner: {Insert name of responsible Mapping Partner}

Scope: <Insert Scope>

Standards: All work shall be performed in accordance with the standards specified in Section 5 – Standards.

Deliverables: The Mapping Partner shall make the following products available to FEMA by uploading the digital data to the MIP, in accordance with the schedule outlined in Section 6 – Schedule.

<Add, modify or delete deliverables below, as necessary>

Perform Independent QA/QC: Coastal Analysis

Responsible Mapping Partner: {Insert name of responsible Mapping Partner}

Scope: <Insert Scope>

Standards: All Independent QA/QC work shall be performed in accordance with the standards specified in Section 5 – Standards.

Deliverables: The Mapping Partner shall make the following products available to FEMA by uploading the digital data to the MIP, in accordance with the schedule outlined in Section 6 – Schedule.

<Add, modify or delete deliverables below, as necessary>

Perform Floodplain Mapping

<Mapping Partners may consider including and completing this task in the MIP if the {Insert name of responsible Mapping Partner} **believes data will need to be submitted during the course of the project, even if this task was not included in the SOW. In addition, leveraged floodplain mapping data must be documented and submitted for this task. Failure to submit this task when data should have been submitted could result in the workflow being reverted back to production tasks and could lead to a delay in the schedule. If the Responsible Mapping Partner obtains floodplain mapping data that was not included in the SOW, the Responsible Mapping Partner shall contact the Region/RCS Lead to request that this task be added to the MIP workflow.>**

Responsible Mapping Partner: {Insert name of responsible Mapping Partner}

Scope for Base Level Study: {Insert name of responsible Mapping Partner}shall delineate the 1 percent-annual-chance floodplain boundaries and any other applicable elements for the flooding sources for which hydrologic, enhanced hydraulic, and/or coastal analyses were performed. {Insert name of responsible Mapping Partner}shall incorporate all new or revised hydrologic, hydraulic, and/or coastal modeling and shall use the topographic data acquired under Develop Topographic Data to delineate the floodplain and regulatory floodway boundaries on a digital work map.

Scope for Enhanced Riverine or Coastal Analysis: {Insert name of responsible Mapping Partner}shall delineate the 1- and 0.2-percent-annual-chance floodplain boundaries and the regulatory floodway boundaries (if required) and any other applicable elements for the flooding sources for which hydrologic, enhanced hydraulic, and/or coastal analyses were performed. {Insert name of responsible Mapping

Partner}shall incorporate all new or revised hydrologic, hydraulic, and/or coastal modeling and shall use the topographic data acquired under Develop Topographic Data to delineate the floodplain and regulatory floodway boundaries on a digital work map.

Scope for Refinement or Creation of Zone A: {Insert name of responsible Mapping Partner}shall delineate the 1-percent-annual-chance floodplain boundaries for the flooding sources in the Scoping Report. {Insert name of responsible Mapping Partner}shall use existing topographic data or the topographic data acquired under Develop Topographic Data to delineate the floodplain boundaries on a digital work map. All Zone A boundaries must be supported with a model.

{Insert name of responsible Mapping Partner} shall incorporate the results of all effective Letters of Map Change (LOMCs) for all affected communities on the FIRM and provide to the appropriate PTS the required submittals for incorporation into the National Flood Hazard Layer (NFHL). Also, {Insert name of responsible Mapping Partner} shall address all concerns or questions regarding Floodplain Mapping that are raised by {Insert name of Mapping Partner responsible for Independent QA/QC} during the independent QA/QC review.

{Insert name of responsible Mapping Partner} shall capture flood hazard engineering and/or mapping data quality issues encountered during this activity in the CNMS data model for the area of interest. These issues will be entered as "Requests" or "Needs" in the CNMS data model based on the nature of the deficiency encountered. Detailed information on performing this task can be found in the relevant standards specified in Section 5 - Standards.

The {Insert name of responsible Mapping Partner} will provide the data to FEMA, at the time of FIRM data submission, to update the Mid-Term Levee Inventory (MLI).

Table 1.9 – Levee PAL Classification

Study Area	Levee Name	Provisionally Accredited Levee Classification	Additional Mapping Required
		A, B or not eligible	

<Add additional details regarding the scope of these activities, as appropriate>

<Optional Paragraph and Table> The{Insert name of responsible Mapping Partner} assigned the floodplain mapping task will include the Provisionally Accredited Levee (PAL) classification. Levee classification will be documented in Table 1.9, Levee PAL Classification. If the PAL Classification for a levee changes during the course of the project, FEMA will contact the {Insert name of responsible Mapping Partner} to discuss the need to revise the statement of work.

Standards: All floodplain mapping work shall be performed in accordance with the standards specified in Section 5 – Standards. The Mapping Partner will perform self-certification audits for the Floodplain Boundary Standards for all flood hazard areas.

The {Insert name of responsible Mapping Partner} assigned the floodplain mapping task will complete all activities pertaining to levees in accordance with the G&S, and all levee PMs.

Deliverables: In accordance with the G&S, and upon completion of floodplain mapping for all flooding sources in this project, {Insert name of responsible Mapping Partner} shall make the following products available to FEMA by uploading the digital data to the MIP so that {Insert name of Mapping Partner responsible for Independent QA/QC} can access it for the independent QA/QC review in accordance with the schedule outlined in Section 6 – Schedule.

<Add, modify or delete deliverables below, as necessary>

- A metadata file complying with the NFIP Metadata Profiles Specifications, must accompany the compliant digital data;
- Support documentation and Certification of Work,
- Digital work map showing the Coastal High Hazard Area (V zone) delineated along {Indicate Atlantic Ocean, Gulf of Mexico, Great Lakes, Pacific Ocean, or other} shorelines, transect locations, 1- and 0.2-percent-annual-chance floodplain boundary delineations, regulatory floodway boundary delineations, cross sections, BFEs, flood insurance risk zone designation labels, gutters, PFD, and all applicable base map features;
- Draft FIRM database prepared in accordance with the requirements in G&S;
- Digital versions of input and output for any computer programs that were used consistent with the DCS–in the G&S (see draft language and coordinate with the Region regarding its appropriate usage);
- A Summary Report that describes and provides the results of all automated or manual QA/QC review steps taken during the preparation of the FIRM as outlined in the approved QA/QC Plan;
- Any backup or supplemental information including supporting calculations and assumptions used in the mapping required for the independent QA/QC review of Hydrologic, Coastal and /or Hydraulic Analyses and Floodplain Mapping consistent with the DCS–in the G&S (see draft language and coordinate with the Region regarding its appropriate usage);
- An explanation for the use of existing topography for the studied reaches, if appropriate;
- Written summary of the analysis methodologies;
- Digital versions of draft FIS report, Floodway Data Tables and updated profiles including all profiles and tables converted appropriate datum, as well as any other necessary items for the finalization of the preliminary FIS;
- If automated GIS-based models are applied, all input data, output data, intermediate data processing products, and GIS data layers shall be submitted consistent with the DCS–in the G&S (see draft language and coordinate with the Region regarding its appropriate usage); and
- Where paper documentation is required by State Law for Professional certifications, the Mapping Partner may submit the paper in addition to a scanned version of the paper for the digital record. Please coordinate with the Regional and/or State representative to verify state reporting requirements.

Perform Independent QA/QC: Floodplain Mapping

Responsible Mapping Partner: {Insert name of responsible Mapping Partner}

Scope: {Insert name of responsible Mapping Partner} shall perform impartial review of the floodplain mapping submitted by {Insert name(s) of Mapping Partner(s) responsible for Perform Floodplain Mapping} under Floodplain Mapping to ensure that the results of the analyses performed are accurately represented, the Redelineation of existing data on new, updated topography is appropriate, and to ensure that the new FIRM panels accurately represent the information shown on the effective FIRMs and FBFMs for the unrevised areas that are mapped. FEMA may audit or assist in these activities if deemed to be necessary by the Regional Project Officer. This work shall include, at a minimum, the activities listed below.

Please note FEMA will also be performing periodic audits and overall study/project management to ensure study quality. The {CTP, PTS, OFA} will be responsible for addressing any and all comments resulting from independent QC, including re-submittal of deliverables as needed to pass technical review.

<Add, modify or delete tasks below, as necessary>

- Review the Summary of Stillwater Elevations and Transect Data tables for agreement with the coastal modeling results;
- Review the coastal transects for proper location and orientation on the work maps and agreement with the Transect Descriptions table. Ensure that the transects on the work maps extend to the inland limit of the coastal modeling results used for mapping;
- Review the cross sections for proper location and orientation on the work map and agreement with the Floodway Data Table;
- Review the BFEs and coastal flood zones (both Zones VE and Zones AE) shown on the work map for proper location and agreement with the results of the coastal modeling;
- Review the regulatory floodway widths for agreement with the widths shown in the Floodway Data Table and the results of the hydraulic modeling;
- Review the PFD and Zone VE/Zone AE boundary delineations to ensure that the PFD delineation is coincident with, or seaward of, the Zone VE/Zone AE boundary;
- Review the floodplain widths at cross sections as shown on the work maps to ensure the data matches the Floodway Data Table;
- Review the floodplain boundaries as shown on the work maps to ensure the data matches the Flood Profiles;
- For non-revised floodplain areas, the 1- and 0.2-percent-annual-chance floodplain boundaries agree with the floodplain boundaries shown on the FIRM, the contour lines, other topographic information, and planimetric information shown on the FIRM base;
- Road and floodplain relationships are maintained for all unrevised areas;
- Review the flood insurance risk zones as shown on the work maps to ensure the data are labeled properly;

- Review the FIRM mapping files to ensure the data were prepared in accordance with the requirements in G&S;
- Review the metadata files to ensure the data includes all required information shown in the NFIP Metadata Profiles Specifications;
- Review that effective Letters of Map Change (LOMCs) for all affected communities on the FIRM were accounted for; and
- Verify that the data was submitted under the applicable HUC-8 folders.

<Add, modify or delete tasks below, as necessary>

Standards: All Independent QA/QC work shall be performed in accordance with the standards specified in Section 5 – Standards.

Deliverables: In accordance with the G&S, {Insert name of responsible Mapping Partner} shall make the following products available to FEMA by uploading the digital data to MIP, in accordance with the schedule outlined in Section 6 – Schedule.

<Add, modify or delete deliverables below, as necessary>

- A Summary Report that describes the findings of the QA/QC review, noting any deficiencies in or agreeing with the mapping results;
- Recommendations to resolve any problems that are identified during the independent QA/QC review;
- An annotated work map with all questions and/or concerns indicated, if necessary; and
- If data changed during review, then updated deliverables for previous tasks will be submitted at this time.

Develop FIRM Database

<Every MAS for a FIRM update must include this task to ensure the database used is documented and submitted for Quality Review 1 as per FEMA's Procedure Memorandum 42. In addition, leveraged FIRM data must be documented and submitted for this task. Normally it will be assigned to the same mapping partner that will be the primary floodplain mapping partner.>

Responsible Mapping Partner: {Insert name of responsible Mapping Partner}

Scope: The {Insert name of responsible Mapping Partner} shall prepare the database in accordance with G&S, for upload to the MIP. {Insert name of responsible Mapping Partner} is responsible for confirming and/or obtaining any revised or updated guidance from the Region or RSC lead. {Insert name of responsible Mapping Partner} will be preparing the database for this project in the {Insert Standard or Enhanced} format, for upload to the MIP. The Enhanced database is the preferred product as it is prepared to incorporate a full GIS database product for this study. The database shall be produced in accordance with the G&S. {Insert name of responsible Mapping Partner} shall coordinate with appropriate Mapping Partners, as necessary, to resolve any problems that are identified during development of the FIRM Database.

Standards: All FIRM Database work shall be performed in accordance with the standards specified in Section 5 - Standards. In addition, appropriate QR activitie(s) shall be performed.

Deliverables: In accordance with G&S, {Insert name of responsible Mapping Partner} shall make the following products available to FEMA by uploading the digital data to the MIP.

- FIRM database files, prepared in accordance with the requirements in G&S and in the required format(s); and
- A metadata file complying with the FEMA NFIP Metadata Profile Specifications.

Produce Preliminary Map Products

<Mapping Partners may consider including and completing this task in the MIP if the {Insert name of responsible Mapping Partner}**believes data will need to be submitted during the course of the project, even if this task was not included in the SOW. In addition, leveraged data used for the creation of Preliminary Map Products must be documented and submitted for this task. Failure to submit this task when data should have been submitted could result in the workflow being reverted back to production tasks and could lead to a delay in the schedule. If the Responsible Mapping Partner obtains Preliminary Map Products data that was not included in the SOW, the Responsible Mapping Partner shall contact the Region/RCS Lead to request that this task be added to the MIP workflow.>**

Responsible Mapping Partner: {Insert name of responsible Mapping Partner}

Scope: {Insert name of responsible Mapping Partner}shall apply the final FEMA FIRM graphic and database specifications to the FIRM files produced under Floodplain Mapping. This work shall include adding all required annotation, line pattern, area shading, and map collar information (e.g., map borders, title blocks, legends, notes to user). {Insert name of responsible Mapping Partner} shall coordinate with those entities responsible for Floodplain Mapping and/or Redelineation, as necessary, to resolve any problems that are identified during development of the FIRM Database and graphics. The Mapping Partner shall prepare Preliminary SOMAs for all affected communities, if appropriate.

<Add additional details regarding the scope of this task, as appropriate>

Standards: All FIRM Database work shall be performed in accordance with the standards specified in Section 5 – Standards. All work must pass the automated and visual "National QA/QC" reviews prior to the distribution of the preliminary copies of the FIRM and FIS report and the Preliminary SOMA. Perform appropriate QR activitie(s).

Deliverables: In accordance with the G&S, {Insert name of responsible Mapping Partner} shall make the following products available to FEMA by uploading the digital data to the MIP, in accordance with the schedule outlined in Section 6 – Schedule.

<Add, modify or delete deliverables below, as necessary>

- Preliminary FIRM database or revised Preliminary FIRM database prepared in accordance with the requirements in G&S;
- Metadata file;

- FIS Report and the Preliminary SOMA prepared using the SOMA Tool on the MIP;
- Complete set of plots of FIRM panels showing all detailed flood hazard information at a suitable scale;
- A Summary Report that describes and provides the results of all automated or manual QA/QC review steps taken during the preparation of the FIRM as outlined in approved QA/QC Plan;
- Passing Quality Review report for:
    - QUALITY REVIEW 2: Auto Validation of Preliminary FIRM Database;
    - QUALITY REVIEW 3: Visual Review of Preliminary Map Panels and FIS; and
    - QUALITY REVIEW 4: Validate BFE Notice and CEO Letters; Publish Proposed Base Flood Elevations (BFEs) in Federal Register; and
- CNMS Regional File Geodatabase updated to reflect changes to the existing inventory in study extents and attributes as of Preliminary Issuance.

Perform Independent QA/QC: Produce Preliminary Map Products

Responsible Mapping Partner: {Insert name of responsible Mapping Partner}

Scope: Upon completion of the floodplain mapping and redelineation activities, {Insert name of responsible Mapping Partner} shall perform an impartial review of the FIRM spatial database to determine if it meets current FEMA database specifications. In addition, {Insert name of responsible Mapping Partner}shall review the FIRM to ensure it meets current FEMA graphic specifications. {Insert name of responsible Mapping Partner} shall coordinate with other entities, as necessary, to resolve any problems identified during this QA/QC review. FEMA may audit or assist in these activities if deemed to be necessary by the Regional Project Officer.

Please note FEMA will also be performing periodic audits and overall study/project management to ensure study quality. The {CTP, PTS, OFA} will be responsible for addressing any and all comments resulting from independent QC, including re-submittal of deliverables as needed to pass technical review.

This work shall ensure that the requirements below are met.

- All required FIRM features are accurately and legibly labeled and following the examples shown in the FEMA FIRM specifications. This includes all flood insurance risk zones, BFEs, gutters, cross sections, transects, studied streams and shorelines, mapped political entities, and all roads within and adjacent to the 1-percent-annual-chance floodplains;
- All FIRM features are correctly symbolized with the appropriate symbol, line pattern, or area shading and follow the requirements in G&S;
- All map collar information is complete, correct, and follows the requirements specified in G&S;
- Preliminary FIRM database is in a GIS file and database format as specified in FEMA's G&S, and conform to those specifications for content and attribution;
- FIRM database files are in one of the database formats specified in FEMA's G&S, and conform to those specifications for content and attribution;
- Assess risk assessment products for compliance with Guidance documents; and

- Review that Preliminary SOMAs were created for applicable communities.

<Add additional details regarding the scope of this task, as appropriate>

Standards: All FIRM Database Development work shall be performed in accordance with the standards specified in Section 5 – Standards.

Deliverables: In accordance with the G&S, {Insert name of responsible Mapping Partner} shall make the following products available to FEMA by uploading the digital data to the MIP, in accordance with the schedule outlined in Section 6 – Schedule.

<Add, modify or delete deliverables below, as necessary>

- A Summary Report that describes the findings of the QA/QC review noting any deficiencies in or agreeing with the mapping results and the results of all automated or manual QA/QC steps taken during the independent QA/QC review;
- Recommendations to resolve any problems that are identified during the independent QA/QC review;
- An annotated copy of the FIRM with all questions and/or concerns indicated, if necessary; and
- If the data changed during the QA/QC process, then the updated deliverables from Floodplain Mapping and Redelineation will be resubmitted at this time.

Distribute Preliminary Map Products

Responsible Mapping Partners: {Insert name of responsible Mapping Partner(s)}

Scope: Preliminary Map Products consists of the final preparation, review, and distribution of the Preliminary copies of the FIRM and FIS report and the Preliminary SOMA and Risk Assessment products for community officials and the general public review and comment. FEMA may audit or assist in these activities if deemed to be necessary by the Regional Project Officer. The activities to be performed are summarized below.

<Add, modify or delete tasks below, as necessary>

Preliminary Transmittal Letter Preparation: The {Insert name of responsible Mapping Partner} shall prepare letters and transmit the Preliminary copies of the FIRM and FIS report and related enclosures to all affected communities, all other Project Team members, the State NFIP Coordinator, the FEMA Regional Office, and others as directed by FEMA. This letter may be prepared for FEMA only or for signature by FEMA and {Insert name of responsible Mapping Partner}.

Distribution of Preliminary FIRM and FIS Report: The {Insert name of responsible Mapping Partner}shall distribute the Preliminary copies of the FIRM and FIS report to all affected communities, all other Project Team members, the State NFIP Coordinator, the FEMA Regional Office, and others as directed by FEMA.

News Release Preparation: The {Insert name of responsible Mapping Partner}shall use the BFEs on the Web tool in accordance with PMs 44 and 57 to create Expanded Appeals Process (EAP) notices for

studies that result in new or modified BFEs/base flood depths and/or new or modified flood hazard information, including additions or modifications of any SFHA boundary, SFHA zone designation, or regulatory floodway within a community. The {Insert name of responsible Mapping Partner}shall prepare the EAP determination letters as well as the news release notifications for all affected communities. The {Insert name of responsible Mapping Partner}shall perform QA/QC reviews of the notices for accuracy and compliance with FEMA format requirements. The {Insert name of responsible Mapping Partner}shall file the notifications for later submittal to FEMA for review.

Deliverables: In accordance with the G&S, {Insert name of responsible Mapping Partner} shall make the appropriate deliverables available to FEMA by uploading the digital data to the MIP or by distributing the deliverables as noted, in accordance with the schedule outlined in Section 6 – Schedule.

- Preliminary transmittal letters shall be prepared and transmitted;
- A preliminary copy of the FIRM and FIS report, including all updated data tables and Flood Profiles shall be mailed to the Chief Executive Officer (CEO) and floodplain administrator of each affected community, all other Project Team members, the State NFIP Coordinator, the FEMA Regional Office, and others as directed by FEMA;
- Preliminary SOMAs, prepared in accordance with FEMA requirements, shall be provided as appropriate;
- A Summary Report that describes and provides the results of all automated or manual QA/QC review steps taken during the final preparation of the preliminary FIRM shall be provided as outlined in the approved QA/QC Plan;
- {Insert name of responsible Mapping Partner}will submit summary of outreach activities and any changes made in the outreach approach based on the actual implementation; and
- Update CNMS Regional File Geodatabase with final documentation identifying stream reaches scoped for study /restudy and any areas with remaining needs and requests as appropriate.

Post-Preliminary Map Production

Responsible Mapping Partners: {Insert name of responsible Mapping Partner}and FEMA.

Scope: This activity consists of finalizing the FIRM and FIS report after the Preliminary copies of the FIRM and FIS report have been issued to community officials and the public for review and comment. FEMA may audit or assist in these activities if deemed to be necessary by the Regional Project Officer. The activities to be performed are summarized below. In addition, the Final (CCO) Meeting and Public Meeting are held during this time, as described in the Risk MAP Meetings Section.

<Add, modify or delete tasks below, as necessary>

Initiation of Statutory 90-Day Appeal Period: When required, upon completion of a 30-day community comment period and/or final coordination meeting with the affected communities, FEMA and/or {Insert name of responsible Mapping Partner(s)}shall arrange for and verify that the following activities are completed in accordance with the current version of the FEMA G&S, appropriate PMs and Document Control Procedures Manual:

- The {Insert name(s) of responsible Mapping Partner(s)}shall prepare the appropriate notices (Proposed Flood Hazard Determinations) that are to be published in the *Federal Register*. The {Insert name(s) of responsible Mapping Partner(s)}shall then deliver those notices to FEMA for publication. Guidance provided in PM 57 shall be followed;
- The {Insert name(s) of responsible Mapping Partner(s)}shall send proposed Flood Hazard Determination letters to the community CEOs and floodplain administrators; and
- The {Insert name(s) of responsible Mapping Partner(s)}shall ensure that news release notifications of Proposed Flood Hazard Determination changes are published in prominent newspapers with local circulation in accordance with 44 CFR.

Resolution of Appeals and Comments: {Insert name(s) of responsible Mapping Partner(s)}shall review and resolve appeals and comments received during the 90-day appeal period. For each appeal and comment, the following activities shall be conducted as appropriate:

- Initial processing and acknowledgment of submittal;
- Technical review of submittal;
- Preparation of letter(s) requesting additional supporting data;
- Performance of revised analyses;
- Preparation of a draft resolution letter for appeals and comments for signature with FEMA and revised FIRM and FIS report materials for FEMA review;
- Update CNMS as appropriate when resolving appeals/comments; and
- Update the Risk Assessment Suite as needed for appeal resolutions.

{Insert name(s) of responsible Mapping Partner(s)}shall mail all associated correspondence upon authorization by FEMA. While comments may be signed by a partner only, appeals must have at least a FEMA co-signature.

Preparation of Special Correspondence: {Insert name(s) of responsible Mapping Partner(s)}shall support FEMA in responding to comments not received within after the 90-day appeal period ends and before the maps are effective (referred to as "special correspondence") including drafting responses for FEMA review when appropriate and finalizing responses for co-signature. {Insert name(s) of responsible Mapping Partner(s)}also shall mail the final correspondence (and enclosures, if appropriate) and distribute appropriate copies of the correspondence and enclosures upon receipt of authorization from FEMA.

Revision of FIRM and FIS Report: If necessary, {Insert name(s) of responsible Mapping Partner(s)}shall coordinate with FEMA to determine the appropriate level of effort to revise the FIRM and FIS report and shall distribute revised Preliminary copies of the FIRM and FIS report to the CEO and floodplain administrator of each affected community, all other Project Team members, the State NFIP Coordinator, the FEMA Regional Office, and others as directed by FEMA.

Final SOMA Preparation: {Insert name(s) of responsible Mapping Partner(s)}shall prepare Final SOMAs for the affected communities with assistance from FEMA, as appropriate.

Processing of Letter of Final Determination: The {Insert name(s) of responsible Mapping Partner(s)}shall work with FEMA to establish the effective date for the FIRM and FIS report, and shall prepare Letters of Final Determination (LFDs) for each affected community for FEMA review in coordination with the Region and its contractor. FEMA or its designated contractor shall mail the final signed LFDs and enclosures and distribute appropriate copies of the signed LFDs. All work must pass the automated and visual "National QA/QC" reviews and review of LFD prior to the distribution of the LFD.

The {Insert name(s) of responsible Mapping Partner(s)}shall prepare the appropriate notices (Final Flood Hazard Determinations) that are to be published in the *Federal Register*. The {Insert name(s) of responsible Mapping Partner(s)}shall then deliver those notices to FEMA for publication.

Processing of Final FIRM and FIS Report for Printing: {Insert name(s) of responsible Mapping Partner(s)} shall prepare final reproduction materials for the FIRM and FIS report and provide these materials to {Insert name of FEMA, PTS or MSC} in accordance with appropriate Procedure Memorandums for printing by the Map Service Center. {Insert name(s) of responsible Mapping Partner(s)}shall also prepare the appropriate paperwork to accompany the FIRM and FIS report (including Print Processing Worksheet, Printing Requisition Forms, and Community Map Actions Form) and transmittal letters to the community CEOs.

Revalidation Letter Processing: {Insert name(s) of responsible Mapping Partner(s)}shall prepare and distribute letters for FEMA signature to the community CEOs and floodplain administrators to notify the affected communities about LOMCs for which determinations will remain in effect after the FIRM and FIS report become effective.

Archiving Data: {Insert name(s) of responsible Mapping Partner(s)}shall ensure that technical and administrative support data are packaged in the FEMA required format and stored properly in the library archives until transmitted to the FEMA Engineering Study Data Package Facility. In addition, the {Insert name(s) of responsible Mapping Partner(s)}will maintain copies of all data for a period of no less than three years.

Standards: All Post Preliminary FIRM work shall be performed in accordance with the standards specified in Section 5 – Standards. All work must pass the automated and visual "National QA/QC" reviews and review of LFD prior to the distribution of the LFD.

Perform appropriate QR activitie(s).

Deliverables: In accordance with the G&S, {Insert name of responsible Mapping Partner} shall make the following products available to FEMA by uploading the digital data to the MIP, in accordance with the schedule outlined in Section 6 – Schedule.

<Add, modify or delete deliverables below, as necessary>

- Documentation that the news releases were published in accordance with FEMA requirements;
- Documentation that the appropriate *Federal Register* notices (Proposed and Final Flood Hazard Determinations) were published in accordance with FEMA requirements;
- Draft and final Special Correspondence (and all associated enclosures, backup data, and other related information) for FEMA review and signature, as appropriate;

- Draft and final Appeal and Comment acknowledgment, additional data, and resolution letters (and all associated enclosures, backup data, and other related information) for FEMA review and signature, as appropriate;
- Draft and final LFDs (and all associated enclosures, backup data, and other related information) for FEMA review and signature;
- FIRM digital files and final FIS report materials including all updated data tables and Flood Profiles;
- Metadata file;
- Provide one hard copy and digital FIRM products to the community;
- Paperwork for the final FIRM and FIS report materials;
- Transmittal letters for the printed FIRM and FIS report;
- LOMC Revalidation Letters, if appropriate;
- Completed, organized, and archived technical and administrative support data;
- Completed, organized, and archived case files and flood elevation dockets; and
- CNMS Regional File Geodatabase updated to reflect changes to the existing inventory in study extents and attributes as of LFD Issuance.

SECTION 2—Technical and Administrative Support Data Submittal

The Project Team members for this Risk MAP Project that have responsibilities for activities included in this {MAS/SOW} shall comply with the data submittal requirements summarized below and in appropriate Procedure Memorandums.

All supporting documentation for the activities in this MAS/SOW shall be submitted according to Appendix M, and will include a flood elevation determination docket (FEDD) folder. Where Technical Support Data Notebook (TSDN) format is used, such shall be submitted in accordance with Section 2 – Technical and Administrative Support Data Submittal. Table 2.1 Mapping Activities and Applicable TSDN Sections indicates the sections of the TSDN that apply to each mapping activity. Submittals must be made to the appropriate PTS for a review of required materials. As needed, the CTP will work with the PTS to ensure that all required documents are included in the TSDN and will respond to requests from the PTS for additional information.

If any issues arise that could affect the completion of an activity within the proposed scope or budget, the responsible Mapping Partner shall complete a Special Problem Report (SPR) as soon as possible after the issue is identified and submitted to FEMA. The SPR is to describe the issue and propose possible resolutions. (For additional information on SPRs, refer to the G&S or consult the Region / RSC lead.)

Please refer to Procedure Memorandum 62 – TSDN and FEDD File Protocol for Mapping Projects.

<Include only those tasks listed below that apply to this Risk MAP Project in Table 2.1.>

Table 2.1 – Mapping Activities and Applicable TSDN Sections

Mapping Activities	TSDN Section												
	General Documentation	Change Requests	Telephone Conversation Reports	Meeting Minutes/ Reports	General Correspondence	Hydrologic Analyses	Engineering Analyses	Hydraulic Analyses	Key to Cross-Section Labeling	Key to Transect Labeling	Draft FIS Report	Mapping Information	Miscellaneous Reference Information
Perform Discovery		X	X	X	X							X	X
Outreach													
Perform Field Survey		X	X	X	X	X		X	X	X			X
Develop Topographic Data		X	X	X	X							X	X
Perform Independent QA/QC: Topographic Data		X	X	X	X							X	X
Acquire Base Map		X	X	X	X	X		X	X	X	X	X	X
Develop Hydrology/ Coastal		X	X	X	X	X	X	X	X	X	X		X
Perform Independent QA/QC: Hydrologic Data		X	X	X	X	X		X	X	X	X		X
Develop Hydraulic Data		X	X	X	X	X	X	X	X	X	X		X
Perform Independent QA/QC: Hydraulic Data		X	X	X	X	X		X	X	X	X		X
Perform Flood-plain Mapping (and Re-delineation)		X	X	X	X	X		X	X	X		X	X

Perform Independent QA/QC: Flood Plain Mapping		X	X	X	X	X		X	X	X		X	X
Develop FIRM Database		X	X	X	X							X	X
Develop Non-Regulatory Products		X	X	X	X							X	X
Produce/Distribute Preliminary Map Products		X	X	X	X							X	X
Post-Preliminary Map Production		X	X	X	X							X	X

SECTION 3—PERIOD OF PERFORMANCE (for CTPs)

The mapping activities outlined in this MAS will be completed as specified in the Agreement Articles of the Cooperative Agreement. The Mapping Activities may be terminated at the option of FEMA or {Insert CTP Name} in accordance with the provisions of the Partnership Agreement dated {Insert Partnership Agreement Date}. If these mapping activities are terminated, all products produced to date must be returned and updated into the MIP and the remaining funds from uncompleted activities, provided by FEMA for this MAS, will be returned to FEMA.

OR

SECTION 3—PERIOD OF PERFORMANCE (for PTS or OFA)

The mapping activities outlined in this SOW will be completed as specified in the {Insert Contract and/or Task order No.}.

SECTION 4—FUNDING/LEVERAGE (For CTP, OFA and/or Community)

FEMA is providing funding, in the amount of {Insert amount of funding provided by FEMA through a Cooperative Agreement}, to {Insert CTP name}for the completion of this Risk MAP Project. {Insert CTP name} shall provide any additional resources required to complete the assigned activities for this Risk MAP Project. During the discovery process, additional needs may be identified. Activities associated with any additional needs would be performed based on availability of additional funds. The leverage listed below includes in-kind services and blue book values for acquired information (i.e. base map data, hydrologic and hydraulic analyses, etc.). These values should also be reported in the MIP by the appropriate task owner. The current Blue Book (2.0) is dated January 2009 and can be downloaded from FEMA's Information Resource Library at http://www.fema.gov/plan/prevent/fhm/ctp_info.shtm#4. {Insert name of responsible Mapping Partner} shall complete Table 4.1 Contribution and Leverage.

Table 4.1 – Contribution and Leverage

Project Task	FEMA Contribution	Partner Contribution	% Partner Leverage (of total project cost)	Total Project Cost
[Insert Task name here}				
TOTAL FUNDING AMOUNTS	$	$	%	$

Final leverage dollars or units shall be entered as applicable within the Manage Data Development task in the MIP workflow. Leverage data shall be an estimate of available leverage data at the time the SOW is prepared and shall be further defined in the Discovery Report.

OR

SECTION 4—FUNDING (FOR PTS) (OPTIONAL)

FEMA is providing funding, in the amount of {Insert amount of funding provided by FEMA through an PTS Contract and/or Task Order}, to {Insert name of responsible Mapping Partner} for the completion of this Risk MAP Project.

SECTION 5—STANDARDS

The standards relevant to this MAS are provided in *Tables 5.1 Applicable Standards for Project Activities* and *5.2 Project Activities and Applicable Portions of FEMA Guidelines and Specifications*. Information on the correct volume and appendix of the G&S to be referenced for each mapping activity are summarized in Table 5.2 for convenience. However, all mapping partners working on a Risk MAP Project are responsible for complying with all appropriate requirements in FEMA's G&S including published draft guidelines and PMs.

These guidelines may be downloaded from the FEMA Flood Hazard Mapping website at http://www.fema.gov/plan/prevent/fhm/dl_cgs.shtm. The Geospatial Data Coordination Policy and the Geospatial Data Coordination Implementation Guide are located at https://hazards.fema.gov under "Tools & Links."

Table 5.1 – Applicable Standards for Project Activities

	Activities																	
Applicable Standards	**Perform Discovery**	**Outreach**	**Perform Field Survey**	**Develop Topographic Data**	**Perform Independent QA/QC: Topographic Data**	**Acquire Base Map**	**Coastal Analysis**	**Perform Independent QA/QC: Coastal Analysis**	**Develop Hydrologic Data**	**Perform Independent QA/QC: Hydrologic Data**	**Develop Hydraulic Data**	**Perform Independent QA/QC: Hydraulic Data**	**Perform Floodplain Mapping (inc. Redelineation)**	**Perform Independent QA/QC: Floodplain Mapping**	**Develop FIRM Database**	**Develop Non-Regulatory Products**	**Produce/Distribute Preliminary Map Products**	**Post-Preliminary Map Production**
Guidelines and Specifications for Flood Hazard Mapping Partners and Procedure Memorandums	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
FEMA's Geospatial Data Coordination Policy	X			X		X												
FEMA's Geospatial Data Coordination Implementation Guide	X			X		X												
Engineer Manual 1110-2-1003, *Hydrographic Surveys* (USACE), January 1, 2002	X		X															
"Numerical Models Accepted by FEMA for NFIP Usage," Updated April 2003	X						X	X	X	X	X	X						
NFIP Metadata Profile Specifications	X			X	X								X	X	X	X	X	X
Document Control Procedures Manual	X	X														X		X
44 Code of Federal Regulations Parts 65, 66 and 67	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Data Sharing Agreement																		

Make updates in text where applicable

Table 5.2 – Project Activities and Applicable Portions of FEMA Guidelines and Specifications

Activity Description	Applicable Volume, Section/Subsection, and Appendix
Perform Discovery	Volume 1
	Appendix I
	Discovery Report document
	OG 1-11: Risk MAP Guidance for Incorporating Mitigation Planning Technical Assistance and Training into Flood Risk Projects
	OG 2-11: Operating Guidance for Creation of Risk MAP Products
	OG 4-11: Risk Map Meetings Guidance
	PM 56, 59, 63
	CNMS User's Guide
	CNMS data model
	"NVUE: Calculation Guidance under Risk MAP"
	44 Code of Federal Regulations Part 66 and 67
Outreach	Volume 1
	Appendix I
	OG 4-11: Risk MAP Meetings Guidance
Develop Non-Regulatory Products	Appendices N and O (draft) September 2011
	PM 59 and 65
	OG 1-11: Risk MAP Guidance for Incorporating Mitigation Planning Technical Assistance and Training into Flood Risk Projects
	OG 2-11: Operating Guidance for Creation of Risk MAP Products

Activity Description	Applicable Volume, Section/Subsection, and Appendix
	OG 3-11: Communicating Flood Risk with Risk MAP Datasets and Products
	OG 6-11: User Guidance for Flood Risk Datasets and Products
	"Risk MAP Products in the MIP" (March 4, 2011)
Perform Field Survey	Volume 1
	Appendices A, B, C, F, and M
Develop Topographic Data and Perform Independent QA/QC: Topographic Data	Volume 1,
	Appendices A and M
	PM 61
Acquire Base Map and Perform Independent QA/QC: Base Map	Volume 1
	Appendices A, K, L, N and O
Develop Hydrologic Data and Perform Independent QA/QC: Hydrologic Data	Volume 1
	Appendices A, C, E, F, G, H, and M
	PM 59
Develop Hydraulic Data and Perform Independent QA/QC: Hydraulic Data	Volume 1
	Appendices A, B, C, E, F, G, H, and M
	PM 34, 43, 51, 52, 53, 59, 63
Perform Coastal Analysis Hazard Analyses and Perform Independent QA/QC: Coastal Analysis	Volume 1
	Appendices A, B, C, D, H, and M
	Coastal Guidelines Updates"
	PM 47
	OG 7-11: Application of TAW Runup Methodology to FEMA Needs
Perform Floodplain Mapping and Perform Independent QA/QC: Floodplain Mapping (including Redelineation/Digitization)	Volume 1
	Appendices C, D, E, F, G, H, K, L, and M
	PM 51, 52, 53 and 56

Activity Description	Applicable Volume, Section/Subsection, and Appendix
	CNMS User's Guide
	CNMS data model
	"NVUE: Calculation Guidance under Risk MAP"
Develop FIRM Database	Volume 1
	Appendices K, L and M
	PM 42, 56
Produce Preliminary Map Products and Perform Independent QA/QC: Produce Preliminary Map Products	Volume 1
	Appendices K, L, and M
	PM 50, 51 and 56
	CNMS User's Guide
	CNMS data model
	"NVUE: Calculation Guidance under Risk MAP"
Distribute Preliminary Map Products and Perform Independent QA/QC: Distribute Preliminary Map Products	Volume 1
	Appendices J, K, L, and M
	PM 44, 56 and 57
	CNMS User's Guide
	CNMS data model
	"NVUE: Calculation Guidance under Risk MAP"
Post-Preliminary Map Production	Volume 1
	Appendices J, K, L, and M
	PM 42, 44, 56, 57, 62
	CNMS User's Guide
	CNMS data model
	"NVUE: Calculation Guidance under Risk MAP"

SECTION 6— SCHEDULE

The activities documented in this {MAS/SOW} shall be completed in accordance with Table 6.1 Mapping Activities Schedule, which should drive the schedule within the MIP. If changes to this schedule are required, the responsible Mapping Partner shall coordinate with FEMA and the PMT in a timely manner. <Include only those activities that apply to this Risk MAP Project in the table below. Place table on separate page if all activities are to be included.>

Table 6.1 – Mapping Activities Schedule

ACTIVITIES	RESPONSIBLE PARTNER(S)	Estimated START DATE	Estimated END DATE	Estimated COST
Perform Discovery				
Outreach				
Develop Non-Regulatory Products				
Perform Field Surveys				
Develop Topographic Data				
Perform Independent QA/QC: Topographic Data				
Acquire Base Map				
Perform Independent QA/QC: Base Map				
Develop Hydrologic Data				
Perform Independent QA/QC: Hydrologic Data				
Develop Hydraulic Data				
Perform Independent QA/QC: Hydraulic Data				
Perform Coastal Analysis				
Perform Independent QA/QC: Coastal Analysis				
Perform Floodplain Mapping: Detailed Riverine				
Perform Floodplain Mapping: Refinement or Creation of Zone A				
Perform Floodplain Mapping: Merging Revised and Unrevised Areas				
Perform Floodplain Mapping: Redelineation				
Perform Independent QA/QC: Floodplain Mapping				
Develop FIRM Database				
Produce Preliminary Map Products (including Graphic Specifications)				
Perform Independent QA/QC: Produce Preliminary Map Products				
Distribute Preliminary Map Products				
Post-Preliminary Map Production				
TOTAL COST				

{Insert name of responsible Mapping Partner} shall update the MIP workflow tasks with schedule and cost information within {Enter period of time} once funds are awarded.

SECTION 7—CERTIFICATIONS

Data Capture Standards

- **DCS Certification Form** {Insert appropriate Data Capture Standards (DCS) language applicable to this Mapping Activity Statement. PLEASE NOTE: The DCS are being updated. FEMA Regions should update this document accordingly once the DCS update is complete.}

Perform Field Surveys and Develop Topographic Data

A Registered Professional Engineer or Licensed Land Surveyor shall provide an accuracy statement for field surveys and/or topographic data used and shall certify these data meet the accuracy statement provided. Data accuracy should be stated used the Federal Geographic Data Committee National Standards for Spatial Data Accuracy, but the American Society for Photogrammetry and Remote Sensing accuracy reporting standards are acceptable.

Acquire Base Map

- A community official or responsible party shall provide written certification that the digital data meet FEMA minimum standards and specifications.
- The responsible Mapping Partner shall provide documentation that the digital base map can be used by FEMA. Please note that uploading base map data to the MIP does not constitute agreement that the digital base map can be used by FEMA. Documentation that the digital base map can be used by FEMA is still required.
- Certifications must be made at the time the intermediate data is submitted. For example, if hydrologic data is submitted, certification will be required at the time it is submitted.

Develop Hydrologic Data, Develop Hydraulic Data, Perform Coastal Analysis, and Perform Floodplain Mapping

- A Registered Professional Engineer shall certify hydrologic and hydraulic and coastal analyses and data in accordance with 44 CFR 65.6(f).
- Any levee systems to be accredited will be certified by the levee owner or other appropriate entity in accordance with 44 CFR 65.10.

SECTION 8—TECHNICAL ASSISTANCE AND RESOURCES

Project Team members may obtain copies of FEMA-issued LOMCs, archived engineering backup data, and data collected as part of the mapping needs assessment and/or CNMS process from FEMA and/or your Regional Project Officer.

General technical and programmatic information can be downloaded from the FEMA website at http://www.fema.gov/plan/prevent/fhm/frm_soft.shtm Specific technical and programmatic support may

be provided through FEMA and/or its contractor; such assistance should be requested through the FEMA Project Officer specified in Section 12 – Points of Contact.

Project Team members also may consult with the FEMA Regional Project Officer to request support in the areas of selection of data sources, digital data accuracy standards, assessment of vertical data accuracy, data collection methods or subcontractors, and GIS-based engineering and modeling training.

Please contact the Region / RSC lead to obtain the most recent version of the Risk MAP Timeline.

Assistance with the MIP may be requested at miphelp@riskmapcds.com

SECTION 9—CONTRACTORS (CTP)

{Insert Name of CTP} intends to use the services of {Insert name of CTP contractor} as a contractor for this Risk MAP Project. {Insert Name of CTP}shall ensure that the procurement for all contractors used for this Risk MAP Project complies with the requirements of 44 CFR 13.36.

OR

{Insert Name of CTP} does not intend to use the services of a contractor for the Risk MAP Project documented in this MAS. {Insert Name of CTP}shall ensure that the procurement for all contractors, if any, are used for this Risk MAP Project complies with the requirements of 44 CFR 13.36.

Part 13 may be downloaded in PDF or text format from the United States Government Printing Office website at http://www.access.gpo.gov/nara/cfr/waisidx_04/44cfr13_04.html.

SECTION 9—CONTRACTORS (OFA)

{Insert name of OFA} does not plan to retain the services of subcontractors for this project. If subcontractors are to be used, {Insert name of OFA} shall notify the FEMA Regional Project Officer and Contracting Officer in accordance with the terms of the contract referenced in the opening paragraph.

SECTION 10—REPORTING (CTP)

Financial Reporting: Because funding has been provided to {Insert Name of CTP} by FEMA, financial reporting requirements for will be in accordance with Cooperative Agreement Articles. {Insert Name of CTP} shall also refer to 44 CFR 13.41.

{Insert Name of CTP} shall communicate with communities throughout the life of each project. Continued engagement is necessary and appropriate and will build upon the relationships established or enhanced during Discovery and provide transparency into the Risk MAP process. This may occur through monthly or quarterly updates or project status calls with community leaders, project websites including updates at several milestones or along a specific timeline, or other methods.

{Insert Name of CTP}shall provide financial reports to the FEMA Regional Project Officer and Assistance Officer in accordance with the terms of the signed Cooperative Agreement for this MAS.

<Add/delete/modify information activities, as necessary>

Status Reporting: Status reports will be submitted on a quarterly basis in accordance with the financial reporting submittals. {Insert Name of CTP} shall refer to 44 CFR 13.4 to obtain minimum requirements for status reporting. The Project Officer, as needed, may request additional information on status.

{Insert Name of CTP}may meet with FEMA and/or its contractor up to bi-weekly, or more frequently if needed, to review the progress of the project in addition to the quarterly financial and status submittals. These meetings will alternate between FEMA's Regional Office, the {Insert CTP Name} office, and conference calls, as necessary.

Earned Value Data Entry:

<Add/delete/modify information activities, as necessary>

SECTION 10—REPORTING (OFA)

Financial Reporting: {Insert name of OFA} shall provide financial reports to the FEMA Regional Project Officer and Contracting Officer.

<Add/delete/modify information, as necessary>

Status Reporting: Status reports will be submitted in accordance with the financial reporting submittals. At a minimum, these reports will include a summary of the work completed to date. The Project Officer, as needed, may request additional information on status.

{Insert name of OFA} may meet with FEMA and/or its contractor up to bi-weekly, or more frequently if needed, to review the progress of the project, in addition to the financial and status submittals. These meetings will alternate between FEMA's Regional Office, the {Insert name of OFA} office and conference calls, as necessary

<Add/delete/modify information, as necessary>

Earned Value Data Entry:

<Add/delete/modify information, as necessary. Add reports that the CTP is expected to provide.>

SECTION 11—PROJECT COORDINATION

Throughout the project, all members of the Project Team will coordinate, as necessary, to ensure the products meet the technical and format specifications required and contain accurate, up-to-date information. Coordination activities may include:

<Add/delete/modify information, as necessary>

- Meetings, teleconferences, and video conferences with FEMA and other Project Team members {specify frequency or dates for meetings};

- Telephone conversations with FEMA and other Project Team members on a scheduled basis {specify schedule for calls} and an ad hoc basis, as required;
- Updates to the MIP and other FEMA status information systems in accordance with requirements in Volumes 1 and 3 of G&S; and
- E-mail, facsimile transmissions, and letters, as required.

SECTION 12—POINTS OF CONTACT (CTP)

The points of contact for this Risk MAP Project are {Insert name of FEMA Regional Projetc Officer}, the FEMA Regional Project Officer; {Insert name of CTP Project Manager}, the Project Manager for {Insert CTP name}; or subsequent personnel of comparable experience who are appointed to fulfill these responsibilities. When necessary, any additional FEMA assistance should be requested through the FEMA Regional Project Officer.

Each party has caused this MAS to be executed by its duly authorized representative.

_____ _____

{Insert name of CTP Project Manager} Date
Project Manager
{Insert CTP name}

_____ _____

{Insert name of FEMA Regional Project Officer} Date
Regional Project Officer
Federal Emergency Management Agency, Region Region #

_____ _____

{Insert name of State authorized representative} Date
{Insert title of State authorized representative}

<In States where statutory and/or regulatory requirements require the State's review and/or approval of new flood hazard data, the State will be a signatory to a community's agreement. Otherwise, delete the State representative signature line.>

SECTION 12—POINTS OF CONTACT (PTS, OFA)

The points of contact for this Risk MAP Project are {Insert name of FEMA Regional Project Officer}, and/or the FEMA {Insert name of Contracting Officer's Technical Representative (COTR)}, {Insert Name of PTS, OFA Project Manager}, the Project Manager for {Insert PTS, OFA Name}; or subsequent personnel of comparable experience who are appointed to fulfill these responsibilities. When necessary,

any additional FEMA assistance should be requested through the FEMA Regional Project Officer and/or COTR.